

CLAIMS

What is claimed is:

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1. A method of copy protecting a digital signal representing audio-visual information, comprising the steps of:
 - (a) encoding the digital signal to obtain an encoded signal;
 - (b) converting the encoded signal into a copy protected signal using a copy protection function, wherein the function utilizes a data signal representing copy protection data; and
 - (c) scrambling the copy protected signal to obtain a scrambled signal.
2. The method of claim 1 further comprising the step of transmitting the scrambled signal and the data signal to a receiver.
3. The method of claim 1 further comprising the step of transmitting the scrambled signal and said data signal as a single signal.
4. The method of claim 3 wherein the step of transmitting further comprises combining the scrambled signal and said data signal into said single

signal.

5. The method of claim 3 further comprising the steps of:

- (a) receiving said single signal in a receiver;
- (b) removing said copy protection data signal from the single signal, and storing the copy protection data represented by the copy protection data signal in a memory device;
- (c) recovering said scrambled signal from the single signal;
- (d) descrambling the recovered scrambled signal to regain said copy protected signal;
- (e) reconvert the regained copy protected signal back into said encoded signal using an inverse copy protection function, wherein the inverse function utilizes said stored copy protection data; and
- (f) decoding the encoded signal to recover said digital signal.

6. The method of claim 1 further comprising the steps of:

(a) descrambling the scrambled signal to recover said copy protected signal;

(b) reconvert the recovered copy protected signal back into said encoded signal using an inverse copy protection function, wherein the inverse function utilizes the copy protection data from said data signal; and

(c) decoding the converted encoded signal to recover said digital signal.

7. A method of recovering an audiovisual signal from a digital signal including a scrambled signal and a copy protection data signal representing copy protection data, comprising the steps of:

(a) extracting said data signal from the digital signal;

(b) storing the copy protection data from said data signal in a memory device;

(c) extracting the scrambled signal from the digital signal;

(d) descrambling the scrambled signal to recover a copy protected signal;

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(e) reconvert the copy protected signal into an encoded signal using an inverse copy protection function, wherein the inverse function utilizes said stored copy protection data; and

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(f) decoding the encoded signal to recover said audio-visual signal.

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8. A system for copy protecting a digital signal representing audio-visual information, comprising:

(a) an encoder to encode the digital signal to obtain an encoded signal;

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(b) a converter to convert the encoded signal into a copy protected signal using a copy protection function, wherein the function utilizes a data signal representing copy protection data; and

(c) a scrambler for scrambling the copy protected signal into a scrambled signal.

9. The system of claim 8 further comprising a transmitter for transmitting the scrambled signal and the data signal to a receiver.

10. The system of claim 8 further comprising a combiner for combining the scrambled signal and said data signal into said single signal, and a transmitter for transmitting said single signal.

11. The system of claim 8 further comprising a transmitter for transmitting the scrambled signal and said data signal as a single signal.

12. The system of claim 11 further comprising:

- (a) a receiver for receiving said single signal in a receiver;
- (b) a processor for: (1) removing said data signal from the single signal, and storing the copy protection data represented by the data signal in a memory device, and (2) recovering said scrambled signal from the single signal;
- (c) a descrambler for descrambling the recovered scrambled signal to regain said copy protected signal;

(d) a reconverter for converting the regained copy protected signal back into said encoded signal using an inverse copy protection function, wherein the inverse function utilizes said stored copy protection data; and

(e) a decoder for decoding the encoded signal to recover said digital signal.

13. The system of claim 8 further comprising:

(a) a descrambler for descrambling the scrambled signal to recover said copy protected signal;

(b) a reconverter for converting the recovered copy protected signal back into said encoded signal using an inverse copy protection function, wherein the inverse function utilizes the copy protection data from said data signal; and

(c) a decoder for decoding the converted encoded signal to recover said digital signal.

14. A system for recovering an audiovisual signal from a digital signal including a scrambled signal and a copy protection data signal representing copy



protection data, the system comprising:

- (a) a processor for: (1) removing said data signal from the digital signal, and storing the copy protection data represented by the data signal in a memory device, and (2) recovering said scrambled signal from the digital signal;
- (b) a descrambler for descrambling the recovered scrambled signal to recover a copy protected signal;
- (c) a reconverter for converting the regained copy protected signal back into said encoded signal using an inverse copy protection function, wherein the inverse function utilizes said stored copy protection data; and
- (d) a decoder for decoding the encoded signal to recover said audio-visual signal.

15. A system for recovering an audiovisual signal from a digital signal including a scrambled signal and a copy protection data signal representing copy protection data, the system comprising a receiver and a descrambler module interconnected via a link, wherein:

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(a) the descrambler module includes:

(1) a first communication interface for communicating with the receiver via the link, and

(2) a descrambler for descrambling an incoming scrambled signal from the receiver via the link; and

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(b) the receiver includes:

(1) a second communication interface for communicating with the descrambler module via the link,

(2) a processor for: (i) removing said data signal from the digital signal, and storing the copy protection data represented by the data signal in a memory device, (ii) extracting said scrambled signal from the digital signal, and providing the scrambled signal to the descrambler via the link; and

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(3) a reconverter for converting an incoming copy protected signal from the descrambler back into said audiovisual signal using an inverse copy protection function, wherein the

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inverse function utilizes said stored copy protection data;

and

whereby the signals flowing from the descrambler module to the receiver
via the link are protected against copying.

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16. The system of claim 15, wherein the incoming audio-visual signal into the receiver is encoded and scrambled, and wherein the receiver further includes a decoder for decoding said reconverted signal.

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17. The system of claim 15, wherein the descrambler module comprises a PCMIA card.

18. The system of claim 15, wherein first and second communication interfaces comprise IS679 compatible interfaces.

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19. The system of claim 215, wherein the link comprises one or more communication mediums configured for carrying audio-visual signals.

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20. In a copy protection system including a receiver interconnected to a descrambler module via a link, a method of copying protecting signals flowing from the descrambler module to the receiver via the link, comprising the steps of:

- (a) receiving a digital signal in the receiver, the digital signal including a scrambled audio-visual signal;
- (b) generating a copy protection data signal representing copy protection data;
- (c) transmitting the digital signal from the receiver to the descrambler module via the link;
- (d) descrambling the scrambled audio-visual signal in the descrambler module to obtain said audiovisual signal;
- (e) converting the audio-visual signal in the descrambler module into a copy protected signal using a copy protection function, wherein the function utilizes said data signal;
- (f) transmitting the copy protected signal from the descrambler to the receiver via the link; and

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(g) ~~reconverting the copy protected signal to the audio-visual signal in the receiver using an inverse copy protection function, wherein the inverse function utilizes said data signal.~~

21. The method of claim 20, wherein the step of generating said data signal includes generating the copy protection data signal in the receiver.

22. The method of claim 21 further comprising the step of transmitting said data signal from the receiver to the descrambler module via the link.

23. The method of claim 20, wherein said audio-visual signal in step (a) is encoded and scrambled.

24. The method of claim 23 further comprising the step of decoding the audio-visual signal in the receiver after the step of reconverting.

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25. ~~The method of claim 20, wherein the descrambler module comprises a PCMIA card.~~

26. The method of claim 20, wherein the link comprises one or more communication mediums configured for carrying audio-visual signals.

27. The method of claim 20, wherein the receiver and the descramble module utilize IS679 compatible interfaces for communication via the link.

28. A copy protection system comprising a receiver and a descrambler module interconnected via a link, wherein:

(a) the descrambler module includes: (1) a first communication interface for communicating with the receiver via the link, (2) a descrambler for descrambling an incoming scrambled audiovisual signal from the receiver via the link, and (3) a converter for converting the audiovisual signal into a copy protected signal using a copy protection function, the function utilizing copy protection data from the receiver, and for providing the copy protected signal to the receiver via the link;

(b) the receiver includes: (1) a second communication interface for communicating with the descrambler module via the link, (2) a signal generator for generating a copy protection data signal representing copy protection data and providing said data to the descrambler via the link, and (3) a reconverter for converting an incoming copy protected signal from the descrambler back into said audiovisual signal using an inverse copy protection function, wherein the inverse function utilizes said copy protection data;

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wherein in response to receiving a digital signal including a scrambled audio-visual signal, the receiver transmits the digital signal and said copy protection data to the descrambler module via the link, and

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wherein in response to receiving the digital signal and the copy protection data from the receiver, the descrambler module descrambles and converts the audio-visual signal into said copy protected signal, and transmits the copy protected signal to the receiver via said link, whereby the signals flowing from the descrambler module to the receiver via the link are protected against copying.

29. The system of claim 28, wherein the incoming audio-visual signal into the receiver is encoded and scrambled, and wherein the receiver further includes a decoder for decoding said reconverted signal.

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30. The system of claim 28, wherein the descrambler module comprises a PCMCIA card.

31. The system of claim 28, wherein the first and second communication interfaces comprise IS679 compatible interfaces.

32. The system of claim 28, wherein the link comprises one or more communication mediums configured for carrying audio-visual signals.

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